Name:_____ Date:_____
Mr. Carman Algebra 2/Trig H: Intro to Statistics

DO NOW: (Review) Express your solution on a number line, in set builder, and interval notation:

$$26 - x^2 \leq 11x$$

REMINDER: To reset your calculator's settings (Graphs, Tables, Statistics Data, etc) Use these steps:

1) Go to the home screen
2) Press: 2^{nd}, +, 7, 1, 2, (clear)

A] Preliminaries:

1) Qualitative Data deals with **qualities (descriptions)**. Data can be observed, but not measured.
Ex: Rate the weather as nice, or gloomy. Rate a tv show as excellent, good, poor.

2) Quantitative Data deals with **quantities.** Data can be measured.
Ex: Measure the current temperature, Rate a tv show on a scale of 1-10.

B] Types of Study:

1) Survey- used to collect quantitative data from a specific population (group of people). They are easy and inexpensive, but they rely on HONESTY. They also need to be based on a random sample, or else there could be a bias.

2) Observational Study- data is collected about a subject AS IS. The researcher does NOT affect the population being tested.
Ex: If I gave out a survey right now to see if eating junk food correlates with test scores.

3) Experimental Study- (like in science class) The researcher MANIPULATES the population being tested. Some experimental studies use a *control group*, which is not manipulated.

Ex: If I selected 10 of you to give tons of candy, then compared your test scores to the rest of the class.

C] In algebra, you learned about the measures of central tendency (mean, median, mode). Today we will learn about the measures of dispersion.

1) Range – difference between highest and lowest values

2) 1st Quartile – 25% of the data is below this value. (25th percentile)

3) 2nd Quartile (The median) – 50% of the data is below this value (50th percentile)

4) 3rd Quartile – 75% of the data is below this value (75th percentile)

5) Interquartile Range – Abbreviated "IQR" This is the 3rd Quartile – the 1st Quartile.

Example: Find the mean, mode, interquartile range, and create a box/whisker plot for the following data:

Number of *facebook* friends of students in Mr. Carman's class:

2 302 328 328 362 407 407 450 450 450 601 601 721 759 877 877 934

Why yes, that *was* horrible and time-consuming. Here is the good news: Your calculator can figure out almost all of this for you…

3) Frequency Tables

Notice how some of the numbers repeat in that last example. We use a frequency table to display this more efficiently.

Value x_i	Frequency f_i
2	
302	
328	
362	
407	
450	
601	
721	
759	
877	
934	

And yes… your calculator can handle one of these tables too (write the calculator steps in that illustriously large space above.)

More Practice:

1) Find the mean, mode, median, 1st and 3rd quartiles, interquartile range, and draw a box and whisker plot for each set of data:

a] {100, 95, 98, 100, 93, 87, 79, 100, 89} (you can do this with or without a frequency table)

b] {98, 77, 89, 95, 98, 98, 98, 98, 98, 98, 98, 98, 98, 98, 100} (Why should you should definitely use a frequency table?)

c] {35, 64, 25, 87, 31, 44, 62, 69}

d] Number of times that Mr. Carman's students have been on an airplane:

18 20 20 20 20 25 30 35 35 35 40 50 50 50

2) The median age of four children is 9.5 years. If Jeanne is 11, Debbie is 8, and Jimmy is 5, then Kathy's age can NOT be:

(1) 16 (2) 11 (3) 13 (4) 10

3) Mark's test scores are as follows: 85, 87, 94, 100, 87. If he wants his average to be above an 89, what is the lowest score he can achieve on his next test?

4) The set of data 6, 8, 9, x, 9, 8 is given. Find all possible values of x such that:

a] there is no mode because everyone appears the same number of times

b] there is only one mode

c] there are two modes

5) If $m\angle A = 113°$, $a = 15$, and $b = 12$, how many non-congruent triangles can be drawn?